

WHAT IS CLAIMED IS:

1. An apparatus for sawing a workpiece comprising:

5 a transport conveyor for moving the workpiece downstream along a path through a plurality of stations;

10 said plurality of stations including a workpiece scanning station including sensing means for sensing the dimensions of the workpiece and processing means associated with said sensing means for analyzing the sensed dimensions provided by said sensing means and providing apparatus control instructions;

15 a chipping station downstream of said scanning station including a pair of chipping heads mounted in laterally opposed relation on either side of said path on lateral translation means for selectively controllable lateral translation of said chipping heads relative to said transport conveyor;

a sawing station downstream of said chipping station including a gang saw;

20 means for independently actuating said lateral translation means with said processing means controlling actuation of said means for independently actuating said lateral translation means in accordance with said apparatus control instructions;

25 wherein each chipping head of said pair of chipping heads is independently and actively laterally translatable by said means for independently actuating said lateral translation means so that at least one of said chipping heads is laterally translatable inwardly and outwardly relative to a workpiece when the workpiece is between said pair of chipping heads so as to recover a side board from a portion of the workpiece having a width larger than adjacent portions of the workpiece.

2. The apparatus of claim 1 wherein said gang saw is pivotally movable relative to said transport conveyor to vary the position of said gang saw relative to the workpiece being carried by said transport conveyor past said gang saw and along said path, and wherein said apparatus further comprises means for moving said gang saw with said processing means controlling actuation of said means for moving said gang saw in accordance with said apparatus control instructions.

3. The apparatus of claim 2 wherein said pair of chipping heads and said gang saw are mounted on a support frame for simultaneous pivotable movement of said pair of chipping heads and said gang saw whereby said pair of chipping heads and said gang saw are both commonly pivotally moveable relative to said transport conveyor to vary the position of both said pair of chipping heads and said gang saw relative to the workpiece being carried by said transport conveyor and along said path.

4. The apparatus of claim 1 further comprising a pair of press rolls mounted with one press roll of said press rolls on either side of said path and between said pair of chipping heads and said sawing station,

each said press roll selectively laterally translatable on press roll translation means according to said apparatus control instructions so as to counter asymmetric lateral chipping forces of said pair of chipping heads asymmetrically operating on the workpiece whereby lateral translation of the workpiece relative to said transport conveyor is inhibited.

5. The apparatus of claim 4 further comprising a pair of anvils rigidly mounted to said pair of press rolls with one anvil of said pair of anvils on either side of said path and between said pair of chipping heads and said pair of press rolls,

said pair of anvils laterally translatable simultaneously with said lateral translation of said pair of press rolls.

5 6. The apparatus of claim 4 wherein each said press roll is also pivotally mounted on press roll pivot means for pivoting of each said press roll about an axis of rotation of a corresponding chipping head of said pair of chipping heads simultaneously with said lateral translation of each said press roll.

10 7. The apparatus of claim 5 wherein each said press roll is also pivotally mounted on press roll pivot means for pivoting of each said press roll about an axis of rotation of a corresponding chipping head of said pair of chipping heads simultaneously with said lateral translation of each said press roll,

15 and wherein each said anvil also simultaneously pivots about said axis of rotation.

8. The apparatus of claim 3 wherein said gang saw includes a saw arbor and wherein said pair of chipping heads and said gang saw are movable linearly across said path and are pivotally mounted so as to be rotationally movable relative to a base and said path.

20 9. An apparatus for curve sawing a workpiece into parts of desired dimensions where the workpiece has non-uniform original dimensions comprising:

a transport conveyor for moving the workpiece along a path through a plurality of stations;

25 said plurality of stations including a workplace scanning station including sensing means for sensing the dimensions of the workpiece and processing means associated with said sensing means for analyzing the sensed dimensions provided by said sensing means and providing an apparatus control instruction;

a chipping station downstream of said scanning station including a pair of chipping heads mounted in laterally opposed relation on either side of said path on lateral translation means for selectively controllable independent lateral translation of said chipping heads relative to said transport conveyor;

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a cutting station including a cutting tool movable relative to said transport conveyor to vary the position of said cutting tool relative to a workpiece being carried by said transport conveyor past said cutting tool and along said path;

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means for independently actuating said lateral translation means with said processing means controlling actuation of said means for independently actuating said lateral translation means in accordance with said apparatus control instructions;

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means for moving said cutting tool relative to said path with said processing means controlling actuation of said means for moving said cutting tool in accordance with said apparatus control instruction,

said cutting tool being rotationally movable about a pivot axis relative to said path,

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wherein each chipping head of said pair of chipping heads is independently and actively laterally translatable so that one of said chipping heads is laterally translatable outwardly relative to a workpiece when between said pair of chipping heads to recover a side board from a portion of the workpiece having a diameter larger than adjacent portions of the workpiece.

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10. The invention as claimed in claim 9 wherein said cutting tool is an array of circular saws mounted on a common shaft.

11. The invention as claimed in claim 9 wherein said pivot axis is located vertically below said path and lies along a line that intercepts said path.

5 12. The apparatus of claim 9 wherein said gang saw is pivotally movable relative to said transport conveyor to vary the position of said gang saw relative to a workpiece being carried by said transport conveyor past said gang saw and along said path, and wherein said apparatus further comprises means for moving said gang saw with said processing means controlling actuation of said means for moving said gang saw in accordance with said apparatus control instructions.

10 13. The apparatus of claim 12 wherein said pair of chipping heads and said gang saw are mounted on a support frame for simultaneous pivotable movement of said pair of chipping heads and said gang saw whereby said pair of chipping heads and said gang saw are both commonly pivotally moveable relative to said transport conveyor to vary
15 the position of both said pair of chipping heads and said gang saw relative to the workpiece being carried by said transport conveyor and along said path.

20 14. The apparatus of claim 9 further comprising a pair of press rolls mounted with one press roll of said press rolls on either side of said path and between said pair of chipping heads and said sawing station,

25 each said press roll selectively laterally translatable on press roll translation means according to said apparatus control instructions so as to counter asymmetric lateral chipping forces of said pair of chipping heads asymmetrically operating on the workpiece whereby lateral translation of the workpiece relative to said transport conveyor is inhibited.

15. The apparatus of claim 14 further comprising a pair of anvils rigidly mounted to said pair of press rolls with one anvil of said pair of anvils on either side of said path and between said pair of chipping heads and said pair of press rolls,

5 said pair of anvils laterally translatable simultaneously with said lateral translation of said pair of press rolls.

16. The apparatus of claim 14 wherein each said press roll is also pivotally mounted on press roll pivot means for pivoting of each said press roll about an axis of rotation of a
10 corresponding chipping head of said pair of chipping heads simultaneously with said lateral translation of each said press roll.

17. The apparatus of claim 15 wherein each said press roll is also pivotally mounted on press roll pivot means for pivoting of each said press roll about an axis of rotation of a
15 corresponding chipping head of said pair of chipping heads simultaneously with said lateral translation of each said press roll,

and wherein each said anvil also simultaneously pivots about said axis of rotation.

20 18. A method of forming a workpiece into sectioned parts using a pair of laterally translatable chipping heads and, downstream, a cutting device of the type having a plurality of rotatable cutting members mounted for rotation on a common axis which is movable and including workpiece transport means for moving the workpiece from a starting position to a final position along a path which extends first past the chipping
25 heads and then past the cutting device, comprising the steps of:

(a) passing the workpiece from the starting position through a scanning position;

- (b) scanning the workpiece with a detection device to determine dimensional information of the workpiece;
- 5 (c) sending the dimensional information to a computing device which analyzes the dimensional information and calculates a cutting solution for the scanned workpiece;
- 10 (d) passing the workpiece from the scanning position toward the chipping heads and the cutting device while orienting the workpiece for movement through the chipping heads and the cutting device substantially along a linear axis of movement;
- 15 (e) engaging the workpiece with the chipping heads and subsequently with the cutting device by passing the workpiece past the chipping heads and the cutting device while actively controlling the rotational position of the cutting device about the common axis of the cutting device relative to the workpiece, both of which in accordance with the cutting solution so as to cut a side board from laterally wider portions of the workpiece; and
- 20 (f) transporting the workpiece and sectioned parts from the cutting device.
19. The apparatus of claim 2 wherein said pair of chipping heads and said gang saw are separate for movement of said pair of chipping heads independently of said gang saw whereby said pair of chipping heads and said gang saw are independently moveable
25 relative to said transport conveyor to independently vary the position of both said pair of chipping heads and said gang saw relative to the workpiece being carried by said transport conveyor and along said path.

20. The apparatus of claim 19 wherein said gang saw includes a saw arbor and wherein said pair of chipping heads and said gang saw are movable linearly across said path and are pivotally mounted so as to be rotationally movable relative to a base and said path.
- 5 21. The apparatus of claim 12 wherein said pair of chipping heads and said gang saw are separate for movement of said pair of chipping heads independently of said gang saw whereby said pair of chipping heads and said gang saw are independently moveable relative to said transport conveyor to independently vary the position of both said pair of chipping heads and said gang saw relative to the workpiece being carried by said transport conveyor and along said path.
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22. The apparatus of claim 1 wherein said transport conveyor includes upstream hold down rolls upstream of said chipping station, downstream hold down rolls downstream of said sawing station, and at least one intermediate hold down roll between said chipping station and said sawing station.
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23. The apparatus of claim 9 wherein said transport conveyor includes upstream hold down rolls upstream of said chipping station, downstream hold down rolls downstream of said sawing station, and at least one intermediate hold down roll between said chipping station and said cutting station.
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